*nula*, and other sessile Cirrhipods; and I am much inclined to believe that the real place of this perplexing group will prove to be intermediate between the Conchifera and the Cirrhipoda—an idea which has derived confirmation from the examination of the very beautiful series of specimens in the collection of S. P. Pratt, Esq., which it is to be hoped that he will take an opportunity ere long of communicating to the public.

I may state that the specimens most acceptable to me at present are those of the various genera of Brachiopoda; as I am very desirous of fully investigating this group before making my first Report. But I shall be very glad to receive *any* others, provided that the name of the shell is specified, when a fragment only is sent; and the bed from which it is obtained, if it be a fossil.

W. B. C.

Bristol, Nov. 16, 1843.

EXPLANATION OF PLATES XIII. XIV.

*Fig.* 1. Appearance of the membrane of a thin layer of the outer part of the shell of *Pinna*, taken parallel to the surface, after removal of the calcareous matter by acid.

*Fig.* 2. Thin section of the outer part of the shell of *Pinna*, not acted on by acid; two small black cells are seen, in which the calcareous matter is deficient.

*Fig.* 3. Section of Nacre, showing the wavy, but usually parallel lines, produced by the plaiting of the basement membrane.

*Fig.* 4. Section of *Avicula* (?) *longicostata*, showing its coarsely corrugated structure penetrated by tubes.

*Fig.* 5. Section of the inner part of the shell of *Lima rudis*, showing a finely corrugated structure abundantly traversed by tubes.

*Fig.* 6. Section of *Terebratula* (recent), showing its peculiar structure, and the large perforations by which the shell is traversed at right angles to the surface.

*Fig.* 7. Shred of *Terebratula* (fossil) detached by the point of a knife, from a deeply-plicated specimen; the difference of aspect between this specimen and the last is entirely due (except in regard to the perforations) to the mode in which the section is made; a natural lamina being obtained in the one case, whilst in the other the plane of section traverses the natural laminæ obliquely.

*Fig.* 8. Section of the tooth of *Mya arenaria*, showing a remarkable crystalline arrangement.

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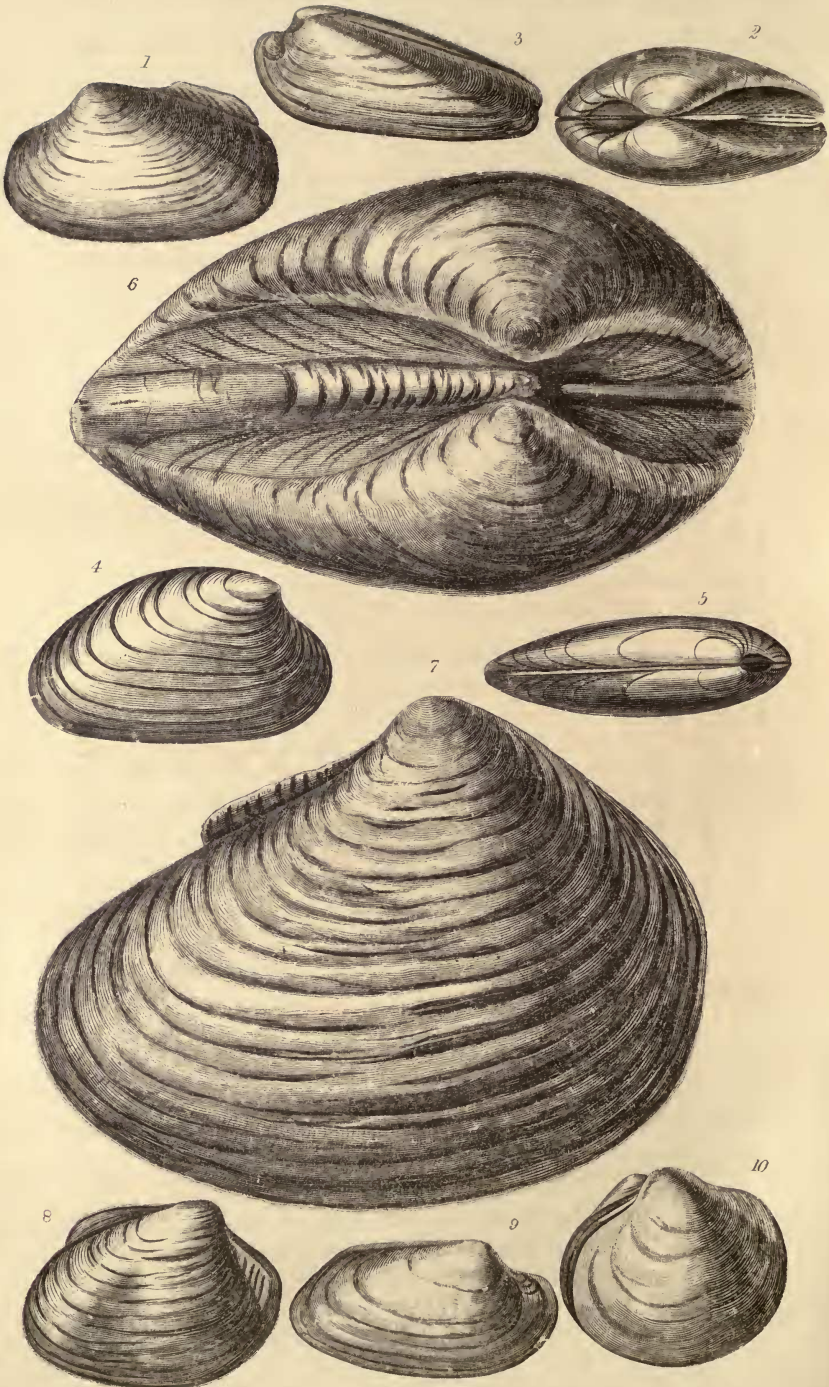
## XLVII.—*Description of some New Species of the Genus* Pachyodon. By Capt. Thomas Brown, M.W.S., M.R.P.S., Curator of the Manchester Natural History Society's Museum, &c.

[With three Plates.]

### 1. *Pachyodon Gerardi.* Pl. XV. figs. 1, 2.

Transversely ovate, inflated, thickness equal to half its breadth; umbones produced, rounded, and contiguous; posterior side short and obliquely truncated; anterior side long and subtrun-




Drawn by Capt.n Brown.

Engraved by W.H.Lizars.

cated; hinge line almost parallel; external surface with a few remote concentric wrinkles or lines of growth.

I found this species in the coal shale at Dalkeith, Mid Lothian.

2. *Pachyodon lateralis.* Pl. XV. fig. 3.

Transversely elongated, subquadrate cuneiform; sides very unequal, the anterior one very long, gradually sloping from the umbones and terminating in an obliquely truncate point; posterior one very short; umbones produced, with acute but not inflected beaks. Length somewhat more than half an inch; breadth nearly an inch and a half.

Coal shale, Whitehaven.

3. *Pachyodon sulcatus.* Pl. XV. figs. 4, 5.

Subtriangular, rather compressed; umbones prominent, very close, slightly reflected, subacute, and placed considerably to one side; general surface smooth, with inequidistant concentric furrows; posterior side arcuated, with a rounded point situate low; anterior side gently rounded; basal line nearly parallel. Length $1\frac{1}{2}$ inch; thickness $\frac{1}{2}$ inch.

Coal shale near Whitehaven.

This species is liable to some variety in external contour.

4. *Pachyodon rugosus.* Pl. XV. figs. 6, 7.

Subtriangular, greatly ventricose in proportion to its size, its depth being equal to five-sixths of its whole length; umbones very prominent, situate considerably to one side, pointing posteriorly and remote from each other; anterior side abruptly descending and rounded; posterior side gradually sloping and considerably more acute than the other; ligament produced; external surface with unequal, rugose, concentric wrinkles. Length $2\frac{5}{8}$ inches; breadth $3\frac{1}{2}$ inches; thickness $2\frac{1}{4}$ inches.

The young shells are much more rugosely wrinkled than the adult.

Found in the ironstone shale at Sheden by Mr. S. Gibson of Hebden Bridge, and in his cabinet.

5. *Pachyodon subrotundus.* Pl. XV. fig. 8.

Subrotund; umbones subcentral, produced, blunt, and somewhat remote from each other; hinge line considerably arcuated; surface with irregular, acute, concentric wrinkles; thickness about equal to half its length.

Coal shale, Oldham.

6. *Pachyodon bipennis.* Pl. XV. fig. 9.

Transversely elongated, somewhat hatchet-shaped; sides unequal; umbones produced and remote; hinge and basal lines

nearly parallel; anterior side short and rounded; posterior side elongate, and obliquely subtruncate from the hinge line, terminating below in a short, slightly acuminated curve; surface rather smooth, with a few, distant, transverse, shallow grooves.

Ironstone shale at Low Moore, Yorkshire.

7. *Pachyodon Dawsoni.* Pl. XV. fig. 10.

Orbicular; umbones central, large, produced and remote; surface nearly smooth, with only a few nearly obsolete concentric wrinkles; thickness equal to more than half its diameter.

Found in the ironstone shale at Low Moore near Bradford, and is in the cabinet of Mr. S. Gibson.

8. *Pachyodon nanus.* Pl. XVI. fig. 1.

Smooth, posterior side elongated and obliquely subtruncate above, subacute below, anterior side rounded; umbones produced and rounded; hinge line arcuated.

Coal shale at Middleton, near Leeds.

9. *Pachyodon Rhindii.* Pl. XVI. fig. 2.

Subacute at both extremities; basal line considerably arcuated, rather produced opposite the umbones; posterior side turned slightly upwards; umbones subcentral, prominent, and very close; hinge line curved; surface with transverse, shallow, irregular wrinkles. Length equal to two-thirds of its breadth.

Coal shale, Polmont, Stirlingshire.

10. *Pachyodon Amygdala.* Pl. XVI. fig. 3.

Inflated, anterior side rounded; posterior side acuminated, with an acute beak-like termination; umbones rather obtuse and remote; basal line considerably arcuated; surface with many irregular acute wrinkles.

Ironstone shale, Low Moore, Yorkshire.

11. *Pachyodon exoletus.* Pl. XVI. fig. 4.

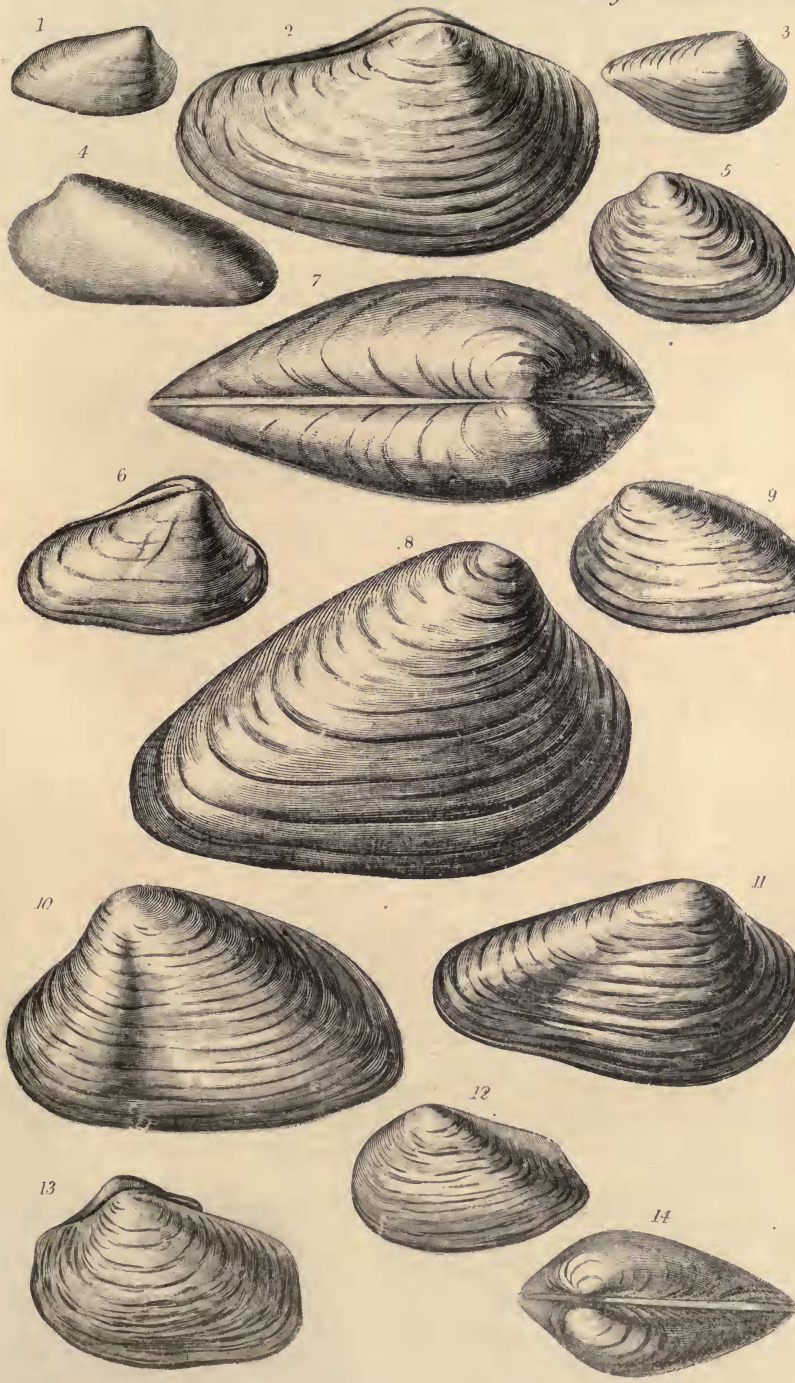
Shell transversely elongate, its breadth about double its length; surface quite smooth; umbones blunt, placed near to the anterior side, which is round; posterior side acuminated and subacute; hinge line slightly arcuated, basal line nearly parallel; thickness somewhat more than half its length.

Ironstone shale, Low Moore, near Bradford.

12. *Pachyodon dubius.* Pl. XVI. fig. 5.

Subovate, both sides rounded; umbones slightly produced and rounded; hinge and basal lines arcuated; surface with nearly obsolete, irregular, concentric wrinkles.

Coal shale near Newcastle-on-Tyne.




Drawn by Capt.n Brown

Engraved by W.H.Lizars.